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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

KHATRI, PRANAV V

ART UNIT PAPER NUMBER

2872

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

87

Office Action Summary

Application No.

10/787,095

Applicant(s)

HAYASHI ET AL.

Examiner

Pranav V. Khatri

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 10-22 and 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/19/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Election

Claims 10-22, and 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 15, 2005.

Applicant's election with traverse of species (1) in the reply filed on August 15, 2005 is acknowledged. The traversal is on the ground(s) that the species would be coextensive or overlap, and would not be a serious burden if the species of the other embodiments were examined together. This is not found persuasive because the species search would not be linked, and though the search may be coexistent it is not coextensive. Therefore, the search in these areas would be a burdensome.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "2B" (Fig 1) has been used to designate both 2B and 3B. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 7-9, 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeshita et al. (US Patent No. 6,088,146).

Regarding claim 1, Takeshita et al. discloses an optical scanner comprising (see Takeshita Fig 7): a plurality of light sources (21a-21d); a coupling optical system (22a-22d) arranged to couple beams emitted from the light sources; a line image focusing optical system (23a-23b) arranged to focus each longer in a mainscan direction (Col 1 Lines 10-12 and Col 9 Lines 19-22); a deflector (Fig 7. Numeral 1) that has deflecting reflective surfaces (mirror) on focused positions of the line image (23a-23b) and a common rotary axis for the deflecting reflective surfaces, is shared for all the beams from the light sources, and deflects the beams focused (Col 8 Lines 23-25, Lines 41-45, and Lines 58-61); a scanning optical system (Fig 7) arranged to guide the beams deflected to a plurality of target surfaces (11-14) for optical scanning; and a photodetector (31a-31b) arranged to receive the beams deflected at the deflector (1), wherein the beams traveling toward the deflector (1) have an open angle Θ in a deflecting rotation plane (Fig 7 beam off polygon mirror has an open angle), the scanning optical system (Fig 7) includes at least two scanning lenses (2A-2B), a scanning lens (2A-2B) proximate to the target surface (11-14), out of the scanning

Art Unit: 2872

lenses (2A-2B), passes only the beams traveling toward a same target surface (11-14), and wherein scanning lenses (2A-2B) proximate to the target surfaces (11-14) for guiding the beams (Fig 7) to different target surfaces (11-14) have optical actions different from each other (Fig 7).

Regarding claim 4, Takeshita et al. discloses wherein the scanning lenses (2A-2B) proximate to the target surfaces (11-14) for guiding the beams to different target surfaces are arranged in different layouts (as seen in Fig 7)

Regarding claim 7, Takeshita et al. discloses wherein the beams emitted from at least two light sources (21a-21d) corresponding to different target surfaces (11-14) are spatially separated (2A-2B) from each other in the deflecting rotation plane on optical paths extending from the light sources (21a-21d) to the line image focusing optical system (23a-23b).

Regarding claim 8, Takeshita et al. discloses wherein at least two light sources (21a-21b) corresponding to different target surfaces (13-14) are integrated (25 integrates the beams from light source 21c-21d to the different target surfaces through the deflecting device and scanning lenses).

Regarding claim 9, Takeshita et al. discloses wherein the photodetector (31a-31b) arranged to receive the beams deflected at the deflector (1) receives the beams corresponding to different target surfaces (31a receives 13 and 14, 31b receives 11 and 12).

Regarding claim 23, Takeshita et al. discloses an optical scanner comprising (see Takeshita Fig 7): a plurality of light sources (21a-21d); a coupling optical system (22a-22d) arranged to couple beams emitted from the light sources; a line image focusing optical system (23a-23b) arranged to focus each longer in a mainscan direction (Col 1 Lines 10-12 and Col 9 Lines 19-22); a deflector (Fig 7 Numeral 1) that has deflecting reflective surfaces (mirror) on focused positions of the line image (23a-23b) and a common rotary axis for the deflecting reflective surfaces, is shared for all the beams from the light sources, and deflects the beams focused (Col 8 Lines 23-25, Lines 41-45, and Lines 58-61); a scanning optical system (Fig 7) arranged to guide the beams deflected to a plurality of photosensitive objects surfaces (11-14) for optical scanning; and a photodetector (31a-31b) arranged to receive the beams deflected at the deflector (1), wherein the beams traveling toward the deflector (1) have an open angle Θ in a deflecting rotation plane (Fig 7 beam off polygon mirror has an open angle), the scanning optical system (Fig 7) includes at least two scanning lenses (2A-2B each have two lenses), a scanning lens (2A-2B) proximate to the photosensitive object (11-14), out of the scanning lenses (2A-2B), passes only the beams traveling toward a same photosensitive object (11-14), and wherein scanning lenses (2A-2B) proximate to the photosensitive objects (11-14) for guiding the beams (Fig 7) to different photosensitive objects (11-14) have optical actions different from each other (Fig 7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al. (US Patent No. 6,088,146) in view of Kato (US Patent Application Publication 2002/005/7331 A1).

Regarding claim 2, Takeshita et al. discloses the invention as set forth above. Takeshita et al. is silent about the teaching wherein the scanning lens proximate to the target surface has a power in a sub scan direction higher than a power in a sub scan direction of a scanning lens proximate to the deflector.

However, Kato teaches wherein the scanning lens proximate to the target surface has a power in a sub scan direction higher than a power in a sub scan direction of a scanning lens proximate to the deflector (see Page 3 Paragraph 0053 Lines 1-7).

It would have been an obvious to one having ordinary skill in the art at the time the invention was made to modify the scanning lens of Takeshita et al. with a scanning lens near the deflector to have more power than the one near the target of Kato for the purpose of enlarging an image in the subscanning direction.

Regarding claim 5, Takeshita et al. in view of Kato discloses wherein the scanning lens (see Kato Fig 1 Numeral 62) proximate to the target surface (8) has a

radius of sub scan curvature on at least one surface asymmetrically varying gradually from an optical axis toward both peripheries (see Fig 1 Numeral 62 and Page 4 Paragraph 0059 Lines 1-2).

Regarding claim 6, Takeshita et al. in view of Kato discloses wherein the scanning lenses (Takeshita et al. Fig 7 Numeral 2A and 2B) proximate to the target surfaces for guiding the beams to different target surfaces (11-14) have a same shape. Takeshita et al. in view of Kato are silent about wherein it is rotated about an optical axis by 180 degrees oppositely from each other and arranged in different layouts.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the photosensitive drum to be able to rotate oppositely from each other at 180 degrees since it was known in the art that the drums are capable or rotation at 180 degrees oppositely from each other and arranged in different layouts (as seen in Fig 7, 11-14).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al. (US Patent No. 6,088,146) in view of Ngoi et al. (US Patent No. 6,307,799).

Regarding claim 3, Takeshita et al. discloses wherein the scanning optical system (see Takeshita et al. Fig 7 Numeral 2A-2B) arranged between the deflector (see Fig 7 Numeral 1) and the target surface (11-14) for guiding the beams to different target surfaces (Fig 7). Takeshita et al. is silent about the teaching wherein it includes a reducing optical system.

However, Ngoi et al. teaches wherein it includes a reducing optical system (Col 2 Lines 26-33).

It would have been an obvious to one having ordinary skill in the art at the time the invention was made to modify the scanning lens of Takeshita et al. with a scanning lens that has a reducing optical system of Ngoi et al. for the purpose of reducing the spot size of a laser beam on the optical media.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pranav V. Khatri whose telephone number is 571-272-8311. The examiner can normally be reached on M-F, 8:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pranav Khatri
Examiner
Art Unit 2872



EUNCHAR P. CHERRY
PRIMARY EXAMINER